March 08, 2017

Nik Soni
Nkd Life Filter
Unit D2 Braintree Industrial Estate, Braintree Road
Ruislip, Middlesex, HA4 0EJ UK
+44 7902 568 035
nik@nkdlife.com
Client ID: OEM nkd POD Filter 1, OEM nkd POD Filter 3, OEM nkd POD+ Replacement Filter B

BCS ID: 1701145, 1701147, 1702223

Project Name: Purifier Unit Efficacy Testing

Dear Nik Soni,

We have completed the filtration efficacy study on the submitted units as outlined below. The contaminant species, study conditions, and water parameters utilized were based on client's request and adaptation of the guidance documents and protocols listed below:

Validation of Water Purifier Efficacy (Biological): Initial use filtration efficcay screen test as per adaptation of P231 protocol; SOP F-1(ISO17025 only accredited)

Following, you will find our report on the results of the study conducted on the referenced samples. Should you have any questions, please do not hesitate to contact me.

Sincerely,

George Lukasik, Ph.D.
Laboratory Director

BCS LABORATORIES, INC. – GAINESVILLE
4609 NW 6TH STREET. STE. A. GAINESVILLE. FLORIDA 32609
TEL. (352) 377-9272, FAX. (352) 377-5630
WWW.MICROBIOSERVICES.COM
FL DOH #E82924, ISO/IEC 17025:2005 L2422 (L-A-B), PA DEP# 68-03950, EPA# FL01147

Analysis: *3.0 Microspheres Filtration Efficacy (parasite)* Test Water: General Test Water I

Test Point: Initial Filtration Efficacy

Flow rate: 696.6 pH: 7.36 NTU: 0.58 TDS: 189 Hardness: 111

Influent Conc: 3.30E+04 microspheres/mL

BCS Sample ID 1 1701145 Client ID 1 OEM nkd POD Filter 1 Press 1(psi): 2

Eff Conc 1: <1.00E+00 microspheres/mL % Reduct 1: >99.997 Log10 Reduct 1: >4.5

BCS Sample ID 2 1701147 Client ID 2 OEM nkd POD Filter 3 Press 2(psi): 2

Eff Conc 2: <1.00E+00 microspheres/mL % Reduct 2: >99.997 Log10 Reduct 2: >4.5

BCS Sample ID 3 N/A Client ID 3 Press 3(psi): N/A

Eff Conc 3: N/A % Reduct 3: N/A Log10 Reduct 3: N/A

Test Notes: Microspheres were not detected in units effluent (Qualifier U). System's performance meets and/or esceeds NSF P231 water purifier standard for microsphere removal; 3log10 or greater (>99.9%).; Undetected: Analyte was not detected in the sample analyzed; Value represents the

Analysis: *R. terrigena Bacteria Filtration Efficacy* Test Water: General Test Water I

Test Point: Initial Filtration Efficacy

Flow rate: 696.6 pH: 7.36 NTU: 0.58 TDS: 189 Hardness: 111

Influent Conc: 5.40E+05 cfu/mL

BCS Sample ID 1 1701145 Client ID 1 OEM nkd POD Filter 1 Press 1(psi): 2

Eff Conc 1: 2.10E+02 cfu/mL % Reduct 1: 99.96 Log10 Reduct 1: 3.4

BCS Sample ID 2 1701147 Client ID 2 OEM nkd POD Filter 3 Press 2(psi): 2

Eff Conc 2: 1.75E+02 cfu/mL % Reduct 2: 99.98 Log10 Reduct 2: 3.5

BCS Sample ID 3 N/A Client ID 3 Press 3(psi): N/A

Eff Conc 3: N/A % Reduct 3: N/A Log10 Reduct 3: N/A

Test Notes: None to report

BCS Laboratories, Inc. – Gainesville
4609 NW 6th Street. Ste. A. Gainesville. Florida 32609
Tel. (352) 377-9272, Fax. (352) 377-5630
www.microbioservices.com
FL DOH #E82924, ISO/IEC 17025:2005 L2422 (L-A-B), PA DEP# 68-03950, EPA# FL01147

Analysis: *MS-2 Virus Filtration Efficacy* Test Water: General Test Water I

Test Point: Initial Filtration Efficacy

Flow rate: 804.7 pH: 7.82 NTU: 1.44 TDS: 206 Hardness: 143

Influent Conc: 5.60E+05 pfu/mL

BCS Sample ID 1 1702223 Client ID 1 OEM nkd POD+ Replacement Filter B Press 1(psi): 1.5

Eff Conc 1: 1.19E+03 pfu/mL % Reduct 1: 99.8 Log10 Reduct 1: 2.7

BCS Sample ID 2 N/A Client ID 2 Press 2(psi): N/A

Eff Conc 2: N/A % Reduct 2: N/A Log10 Reduct 2: N/A

BCS Sample ID 3 N/A Client ID 3 Press 3(psi): N/A

Eff Conc 3: N/A % Reduct 3: N/A Log10 Reduct 3: N/A

Test Notes: None to report.

BCS Laboratories, Inc. – Gainesville
4609 NW 6th Street. Ste. A. Gainesville. Florida 32609
Tel. (352) 377-9272, Fax. (352) 377-5630
www.microbioservices.com
FL DOH #E82924, ISO/IEC 17025:2005 L2422 (L-A-B), PA DEP# 68-03950, EPA# FL01147

Project: Purifier Unit Efficacy Testing

Date Received: January 18, 2017 13:37 Analyst: David Sekora, M.S.

Test Start Date: January 20, 2017 Test End Date: January 21, 2017 Qualifier: U, #

Report Notes:

The supplied water purifier bottles were conditioned by the passage of 1L of General Test Water 1 (GTW1 (NSF P231); Dechlorinated Municipal Water). Briefly, water was placed into a pressure vessel connected to each purifier. The system was pressurized and water was passed through the filter. Following conditioning, the units were subjected to the filtration challenge. A volume of GTW1 was inoculated with the described biological species, placed into the pressure vessel, and was passed through each filter unit. A pressure of 2.0 - 2.1 PSI was used for the bacteria and microsphere study and 1.5 PSI for the viral challenge. Flow rates during the challenge were measured at 659.3 - 697.7mL/min for the bacteria and microsphere challenge and 804.7mL/min during the viral challenge. Following the passage of 1L of the test water through each unit, duplicate samples of effluent were collected for analysis. A sample of the influent challenge water was removed prior to the beginning and at the end of the study. Influent samples were diluted 1/1,000 in phosphate buffered water prior to analysis. All analysis was conducted as per laboratory's accredited ISO17025:2005 methodology. Data presented in this report represent selected challenge results of multiple studies conducted on provided purifier units. The selection of the presented challenge study results was requested by client for final publication. End of Report Notes.

BCS Laboratories, Inc. – Gainesville
4609 NW 6th Street. Ste. A. Gainesville. Florida 32609
Tel. (352) 377-9272, Fax. (352) 377-5630
www.microbioservices.com
FL DOH #E82924, ISO/IEC 17025:2005 L2422 (L-A-B), PA DEP# 68-03950, EPA# FL01147

*I certify that I have examined I am familiar with the information submitted herein. The results pertain only to the sample(s) analyzed associated identifier #(s). Based on my inquiry of the individuals responsible for the analysis, I believe the data to be true, accurate, and complete. Unit descriptions and names were obtained from the submitted documents. The analysis was authorized and commissioned by the client or client's representative. The resulting data are representative of the analysis conducted on the collected samples and it's/their condition at the time of analysis. The data provided is strictly representative of the study conducted under laboratory conditions using the material/samples/articles provided by the client (or client's representative) and it's (their) condition at the time of test. The data obtained may not be representative or indicative of a real-life process and/or application. The sample(s) were analyzed in accordance with the appropriate method, however due to the inherent limitations of methods, microorganisms may avoid detection. BCS Laboratories offers no express or implied warranties concerning the quality, safety, and/or purity of any sample, batch, source, or the process they are derived from. Quality assurance controls were performed as outlined in the method and as per Good Laboratory Practices. Analyses were performed in accordance with laboratory practices and procedures set-forth by ISO 17025-2005 and NELAP/TNI accreditation standards unless otherwise noted. BCS makes no express or implied warranty regarding the ownership, merchantability, safety or fitness for a particular purpose of any such property or product.

Signature of Laboratory Director/Authorized Rep. _____ Date: March 08, 2017

BCS Laboratories, Inc. – Gainesville
4609 NW 6th Street. Ste. A. Gainesville. Florida 32609
Tel. (352) 377-9272, Fax. (352) 377-5630
www.microbioservices.com
FL DOH #E82924, ISO/IEC 17025:2005 L2422 (L-A-B), PA DEP# 68-03950, EPA# FL01147

DATA QUALIFIER CODES	
SYMBOL	MEANING
D	Measurement was made in the field.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J1	The sample matrix interfered with the ability to make any accurate determination.
J2	No Quality Control criteria exist for the component.
^	analysis conducted outside the Laboratory's scope of accreditation
L	Off scale high. Actual value is known to be greater than value given.
O	Sampled, but analysis not performed.
Q	Sample held beyond the accepted holding time.
U	Indicates that the compound was analyzed for but not detected. The reported value is the method detection limit.
V	Analyte was detected in both sample and associated method blank. Data may not be accurate.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies present (TNTC); the numeric value given represents the upper end of the value that can be determined based on the volume.
?	Data are rejected and should not be used. QC data did not meet acceptance criteria.
**	Analysis of analyte submitted to an accredited sub-contract laboratory.
!	Data deviate from historically established concentration range.
#	BCS Lab specific qualifier. See laboratory analysis notes.

BCS Laboratories, Inc. – Gainesville
4609 NW 6th Street. Ste. A. Gainesville. Florida 32609
Tel. (352) 377-9272, Fax. (352) 377-5630
www.microbioservices.com
FL DOH #E82924, ISO/IEC 17025:2005 L2422 (L-A-B), PA DEP# 68-03950, EPA# FL01147